



PATTERN OF LYMPHADENOPATHIES IN A TERTIARY CARE HOSPITAL IN JAMMU, INDIA.

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ABSTRACT

Background: Palpable lymph nodes are commonly encountered in clinical practice. It is a manifestation of both benign and malignant diseases. Histopathology of lymph nodes is the "gold standard" for accurate evaluation of both non neoplastic & neoplastic lesions of the lymph node. **Material & Methods:** This is a retrospective observational study, which was done in the Post Graduate Department of Pathology, GMC Jammu, over a period of three years, from 1st January 2014 to 31st December 2016. A total of 94 cases of lymph node biopsies were retrieved from the archives of Histopathology section of Department of Pathology, GMC Jammu. The slides of lymph node biopsies were studied and classified into various neoplastic and non neoplastic lesions of lymph nodes.

Results: Out of the total 94 cases, 34 cases (36.2%) were tubercular lymphadenitis, 20 (21.3%) were metastatic tumours followed by 16 cases (17.1%) of Non Hodgkin Lymphoma (NHL), 12 cases (12.7%) each of Hodgkin lymphoma (HL) & chronic non specific lymphadenitis. Cervical lymph node was the most frequently biopsied lymph node (40.4%). Males were more frequently involved with the male to female ratio being 1.1:1. The age range was 1-82 years with the mean age of 35 years. Maximum number of cases were in the 3rd and 5th decade.

Conclusion: Tuberculosis was the most common cause of lymphadenopathy in a developing country like ours.

KEYWORDS : Lymph nodes, lymphadenopathy, tubercular lymphadenitis.

Introduction:

Lymphadenopathy is defined as an abnormality in size or character of lymph node, which can be caused by invasion or propagation of either inflammatory or neoplastic cells into the node. Significant lymphadenopathy is defined as a lymph node with a diameter exceeding 1 cm for cervical and axillary nodes and 1.5 cm for inguinal nodes¹. Generalized lymphadenopathy is defined as lymphadenopathy found in two or more distinct anatomical regions. Clinically lymphadenopathy is divided into peripheral and visceral lymphadenopathy. Peripheral lymphadenopathy are easy to detect by palpation during routine physical examination, whereas visceral lymphadenopathy requires laprotomy or sophisticated imaging techniques for detection. Among the peripheral nodes, those in the upper part of the body (cervical, supraclavicular, axillary) are preferentially biopsied than lower limb nodes (popliteal, inguinal or femoral) as the former are more likely to yield definitive diagnosis, whereas the latter are often characterized by nonspecific reactive or chronic inflammatory and fibrotic changes.² This study was undertaken to study the histopathological spectrum of lymphadenopathies in a tertiary care hospital in Jammu.

Aims & Objectives:

1. To study distribution of lesions affecting lymph node.
2. To study correlation with age, sex and site.

Material & Methods:

This is a retrospective study of lymph node biopsies carried out in the PG Department of Pathology, GMC Jammu, over a period of 3 years i.e. from 1st January 2014 to 31st December 2016. A total of 94 lymph node specimens were received in the Histopathology section of the Department of Pathology in this tenure.

Inclusion criteria:

Lymph node biopsies from all ages and both sexes were included in our study. Biopsies from both peripheral and visceral lymph nodes were included in our study. Only one lymph node biopsy per patient (largest lymph node) was included in the study.

Exclusion criteria:

The lymph nodes sent as part of the main specimen such as mastectomy with axillary clearance, surgery of bowel, gall bladder were not included in the study.

Histology slides of all cases were reviewed by the authors. Clinicodemographic data regarding age, sex, anatomical site of nodal biopsy and clinical details of fever, cough, weight loss, night sweats, splenomegaly, pain and tenderness, size of lymph node, its consistency, mobility, were obtained from histology request forms and register.

All biopsies were fixed in 10% formalin and routine hematoxyline-eosin stained sections were examined. Special stains like Ziehl-Neelsen was employed where necessary. Diagnosis was made on the basis of morphology.

Non-Hodgkin lymphomas (NHLs) were classified according to the working formulation. Diagnosis of tuberculosis was made by demonstration of epithelioid granuloma with caseation necrosis on histopathological examination, which were substantiated by the presence of acid fast bacilli on ZN staining.

Results:

A total of 94 lymph node biopsies were reviewed during the period of study of three years from 1st January 2014 to 31st December 2016. The age range was 1-82 years. The mean age was 35 years. Out of 94 cases, 50 (53.2%) were males and 44 (46.8%) were females with male to female ratio being 1.1:1.

Out of 94 lymph node biopsies, non neoplastic lesions were 46 (48.9%) and neoplastic lesions were 48 (51.1%). Results of our study are summarized in Tables -1, 2, 3, 4, 5 & 6.

Table No 1: Histological distribution of various lymphadenopathies.:

S. No	Histological lesion	Number of cases	Percentage %
1.	Tubercular lymphadenitis	34	36.2%
2.	Chronic non specific lymphadenitis	12	12.7%
3.	Metastatic deposits	20	21.3%
4.	Non-Hodgkin Lymphoma	16	17.1%
5.	Hodgkin Lymphoma	12	12.7%
Total		94	100%

Table No-2: Distribution of lesions according to age.

Age in years	Tubercular Lymphadenitis	Chronic Non Specific Lymphadenitis	Non Hodgkin Lymphoma	Hodgkins Lymphoma	Metastatic deposits	No of cases	Percent age
0-9	4	2	-	-	-	6	6.4%
10-19	10	5	1	1	-	17	18.1%
20-29	12	2	-	2	2	18	19.1%
30-39	4	3	2	1	2	12	12.8%
40-49	3	-	6	6	3	18	19.1%
50-59	1	-	4	2	5	12	12.8%
60 & Above	-	-	3	-	8	11	11.7
Total	34	12	16	12	20	94	100%

Table No-3: Distribution of lesions according to gender.

Type of lesion	Male	Female	Sex Ratio
Tubercular lymphadenitis	18	16	1.125:1
Chronic non specific lymphadenitis	6	6	1:1
Metastatic deposits	12	8	1.5:1
Non-Hodgkin Lymphoma	10	6	1.66:1
Hodgkin Lymphoma	4	8	0.5:1
Total	50	44	1.1:1

Table No-4: Distribution of the lesions according to site.

Site of Lymphadenopathy	Tubercular Lymphadenopathy	Chronic non specific lymphadenitis	Non Hodgkin lymphoma	Hodgkins Lymphoma	Metastatic Lymph node	Total
Cervical	20	2	6	6	4	38
Supraclavicular	6	4	1	1	4	16
Axillary	2	-	3	3	4	12
Inguinal	1	2	-	-	2	5
Perivisceral	1	2	-	-	5	8
Mesentery	1	-	2	1	3	7
Preauricular	3	2	-	1	2	8
Total	34	12	16	12	20	94

Table No 5: Metastatic deposits in lymph node-

Primary site of malignancy	Histopathological diagnosis	Number of cases
Thyroid	Papillary carcinoma	1
Breast	Infiltrating ductal carcinoma(NOS)	3
	Infiltrating lobular carcinoma	1
	Medullary carcinoma	1
Bowel	Adenocarcinoma	5
Lung	Squamous cell carcinoma	2
Salivary gland	Mucoepidermoid carcinoma	1
Stomach	Adenocarcinoma	1
Cervix	Sqamous cell carcinoma	1
Skin	Melanoma	1
Unknown primary	Anaplastic carcinoma	1
	Small round cell tumour	1
	Adenocarcinoma	1
Total		20

Table No-6: Distribution of lymphomas according to the working classification.

Morphological types	No. of cases	Percentage%
Non Hodgkin Lymphoma		
• Low grade	4	25%
• Intermediate grade	8	50%
• High grade	4	25%
Total	16	100%

Hodgkin lymphoma	No of cases	Percent age
• Nodular sclerosis	4	33.3%
• Mixed cellularity	5	41.6%
• Lymphocyte predominance	2	16.6%
• Lymphocyte rich	1	8.3%
• Lymphocyte depleted	-	0%
Total	12	100%

Discussion:

Enlarged lymph nodes are one the most commonly encountered problems in clinical practice. Although fine needle aspiration cytology is commonly used for the initial screening and diagnosis of lymphadenopathies, however histopathology of the excised lymph node remains the "gold standard" for diagnosis.^{3,5}

Lymph node enlargement may occur because of multiple causes like proliferation of lymphocytes and monocyte-macrophage system in response to antigenic stimulation, infiltration by inflammatory cells in infectious processes, infiltration by malignant cells in metastasis, infiltration by metabolic laden macrophages in lipid storage diseases or in situ proliferation of malignant lymphocytes or macrophages.⁶

In the present study, males outnumbered females with the male to female ratio being 1.1: 1. This is in concordance with Saraswat et al⁷ and Zahir et al⁸ who also reported the male to female ratio of 1.1:1 respectively. Maula et al⁹ reported male to female ratio of 1.2:1. Shreshta et al¹⁰ reported male to female ratio of 0.96:1.

In the present study most cases were seen in the 3rd and 5th decade of age with 19.1% cases each, followed by 2nd and 4th decade. Rahman et al¹¹ reported maximum number of cases in the 3rd decade (22%) followed by 4th decade(17.8%). Saraswat et al⁷ reported maximum number of cases in the age group of 21-40 years(52%) and least number of cases in the age group above 60 years of age. Vidhyadhar et al¹² reported maximum number of non neoplastic cases in the 3rd decade of life and maximum number of neoplastic cases seen over 50 years of age. In our study also non neoplastic lesions showed a predilection for the young and non neoplastic lesions especially the metastatic lymph nodes were seen more commonly above 50 years of age. In our study, tubercular lymphadenitis was seen mainly in the age group of 10-30 years(64.7%). Rahman et al¹¹ reported maximum number of tubercular lymphadenitis in the age group of 11-40 years(79.7%). In our study NHL were more common than HL. NHL occurred more commonly in males, with maximum number of cases in the fifth decade of life. Maximum number of cases of NHL were of intermediate grade. Hodgkin's lymphoma showed a female predilection, with maximum number of cases of mixed cellularity. This is in concordance with Rahman et al.¹¹

In the present study of 94 cases, non neoplastic cases were 48.9% and neoplastic cases were 51.1%. Vidhyadhar et al¹² reported 75.62% non neoplastic lesion and 24.37% neoplastic lesions. Albasri et al¹³ reported 47.1% as non neoplastic lesions and 52.9% as neoplastic lesions. Roy et al¹⁴ in their study reported non neoplastic lesions as 47% and neoplastic lesions as 53% respectively. In present study, cervical lymph nodes were most frequently biopsied, constituting 40.4% of total lymph node biopsies. This was followed by supraclavicular (17%), intraabdominal(perivisceral and mesentery) (15.7%) and axillary(12.8%). Rahman et al¹¹ also reported cervical lymph node as the most common biopsied lymph node constituting 56% of all the nodal biopsies. Shrestha et al¹⁰ and Mohan et al¹⁵ also reported cervical lymph node as the most frequently biopsied lymph node.

Table No- 7: Comparison of histological spectrum of lymphadenopathies in various studies:

Authors	Year of study	Tubercular Lymphadenitis	Chronic non specific lymphadenitis	Non Hodg kin lymphoma	Hodg kin lymphoma	Metastatic lymph nodes	Other Lesions*
Rahman et al ¹¹	2012	33.5%	30.89%	11.52 %	5.76%	12.57	5.76%
Saraswat et al ⁷	2015	63.3%	13.7%	5.7%	-	3.2%	14%
Vidhyadhar et al ¹²	2016	34.32 %	10.44%	4%	0.5%	20%	30.74 %
Roy et al ¹⁴	2017	18%	21.6%	32.1 %	12.4%	8.5%	7.4%
Present study	2017	36.2%	12.7%	17.1 %	12.7%	21.3%	-

*(The other lesions category includes non neoplastic reactive lesions like acute reactive lymphadenitis, follicular hyperplasia, sinus histiocytosis, dermatopathic lymphadenitis, cat scratch disease, langerhans cell histiocytosis etc.)

When we compare, the various studies of lymph nodes, done in the past to our present study, it is clearly seen that tubercular lymphadenitis is still the most common cause of lymphadenopathy in this region of the world. The studies performed in other developing countries also show that tubercular lymphadenopathy is the most common cause of lymphadenopathy.^{10,16,17} The high incidence of Tuberculosis has been attributed to low socioeconomic status and poor living standard in the underdeveloped and developing countries.¹⁸ In the western countries, tuberculosis is rare and neoplastic diseases, both primary and secondary are predominant cause of lymphadenopathy.

In the study by Roy et al,¹⁴ lymphomas (both NHL & HL) constitute the majority of cases (44.5%). This could be attributed to the fact that this study was done in Jawaharlal Institute of Post Graduate Medical Education & Research (JIPMER), puducherry, India, which is a national level referral institute, where there is high influx of difficult neoplastic cases, hence the pattern of results.

Among the metastatic tumours adenocarcinoma was the commonest followed by metastatic deposits from infiltrating duct carcinoma breast. Metastatic lesions occur commonly over 50 years of age, with a male predilection. Rahman et al¹¹ reported adenocarcinoma as the most frequent metastatic tumour.

Conclusion:

The histological spectrum of lymphadenopathies observed in our set up are comparable to studies conducted in other developing countries. Tuberculosis still remains the number one cause of lymphadenopathy in developing countries. Neck nodes are most commonly sent for histopathology. Non neoplastic lesions have a preference for the young and non neoplastic lesions have a preference for the older age group. Persistent lymphadenopathy should never be ignored but evaluated by histopathology as FNAC has not be helpful for exact diagnosis and subtyping of lymphomas.

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